

July 9, 1957

**MEMORANDUM TO:** Mr. D. W. Sweeney

**SUBJECT:** Standardization of input-output equipment

**REFERENCE:** Attached memo on same subject to Mr. J. C. Gibson

Suggest the time is ripe for discussion of this subject with other groups in Product Planning in an attempt to establish a firm departmental stand as a first step to obtaining acceptance by Product Development.

E. F. Codd

EFC:ch

cc; Mr. D. W. Pendery  
Mr. J. E. Griffith ←  
Mr. J. C. Gibson

July 9, 1957

MEMORANDUM TO: Mr. J. C. Gibson

SUBJECT: Standardization of input-output equipment

REFERENCES:

- 1) Memo from D. W. Sweeney to D. W. Pendery dated June 20, 1957
- 2) Memo from W. Buchholz to D. W. Sweeney dated June 21, 1957
- 3) Memo from J. C. Gibson to D. W. Pendery dated July 1, 1957
- 4) Memo from D. W. Sweeney to W. Buchholz dated July 2, 1957

The purpose of this memorandum is two-fold:

- 1) to indicate my agreement with your proposal and your reasons for it.
- 2) to put forward an extension of your proposal.

In order to be specific, only card readers are considered, but it is intended that the principles be applied to card punches and printers which operate from card images. Special emphasis is placed on row-by-row devices.

PROPOSAL

The essence of this proposal is that a modular approach be taken to card readers and card image memories in such a way that

- 1) the readers can be used without modification for accounting machines, on-line computer input and off-line computer input ( via magnetic tapes );
- 2) the card image memories can be used without modification for computer input, both on and off-line.

In the attached block diagram the various packages are shown together with the information paths between them. The diagram is intended to be self-explanatory. No consideration has been given to such questions as power supplies and control signals.

REASONS FOR PROPOSAL

In addition to the reasons stated by Mr. Gibson in his memo, the following are pertinent here:

1. Development of input-output equipment need not be in phase with that of specific computer projects.

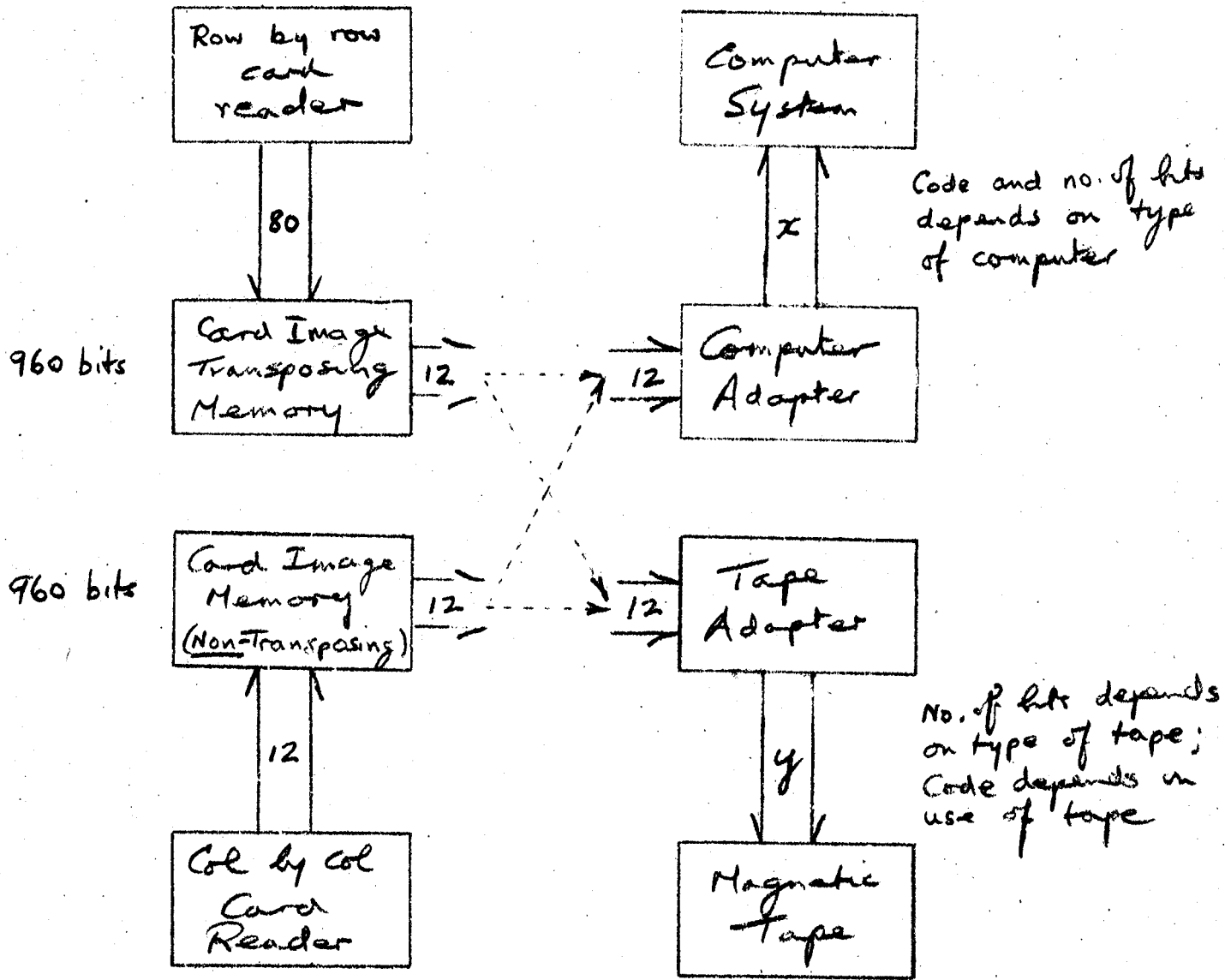
2. Only the largest computers can afford to accept row-by-row images directly into the main memory for subsequent transposition and translation by programmed steps. Programmed transposition and translation must be ruled out for large computers, because they are not acceptable for small computers and, consequently, conflict with the goal of standardization of input-output equipment.

E. F. Codd

EFC:ch  
Attachment

cc: Mr. G. A. Blaauw  
Mr. F. P. Brooks  
Mr. W. Buchholz  
Mr. J. D. Calvert  
Mr. S. W. Dunwell  
Mr. A. S. Goble  
Mr. R. A. Gregory  
Mr. J. E. Griffith ←  
Mr. E. J. Rabenda  
Mr. D. W. Sweeney  
Mr. H. K. Wild  
Mr. W. D. Winger  
Mr. W. Wolensky  
Mr. D. W. Pendery

# Standardization of Input-Output



Unit	Standard for given speed for following lines
Card Reader (row)	Accounting mach. & computers
Transposing Memory	Computers of all types
Computer Adapter	Specific type of computer